

Application No. 10/774,859
Amendment dated July 11, 2005
Reply to Office Action of April 13, 2005

AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A process for protecting catalytic activity of a silicoaluminophosphate molecular sieve, comprising the steps of:

a) regenerating silicoaluminophosphate molecular sieve catalyst particles to contain less than about 1% coke by weight relative to a weight of molecular sieve material within the regenerated catalyst particles at a temperature of at least 580°C;

b) cooling the regenerated catalyst particles to a temperature of from 400°C to 550°C; and

bc) mixing the regenerated catalyst particles at a temperature of less than 550°C with coked catalyst particles containing at least 2% coke by weight relative to a weight of molecular sieve material within the coked catalyst particles to maintain the catalytic activity of the mixed catalyst particles at a predetermined level,

wherein carbon contained in the coke is the only carbon present and oxygen contained within the catalyst is the only oxygen present.

2 - 5. (Canceled)

6. (Previously Presented) The process of claim 1, wherein the regenerated catalyst particles are regenerated in a regenerator that is part of a reactor system for converting oxygenates to olefins.

7. (Original) The process of claim 6, wherein the regenerated catalyst particles are mixed with coked catalyst particles in a fluidized bed within a reactor.

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8. (Original) The process of claim 6, wherein the regenerated catalyst particles are mixed with coked catalyst particles prior to introducing the regenerated catalyst particles into a fluidized bed within a reactor.

9. (Original) The process of claim 1, wherein the coked catalyst particles contain from about 2% to about 18% coke by weight relative to the weight of molecular sieve material within the coked catalyst particles.

10. (Original) The process of claim 1, wherein the coked catalyst particles contain from about 7% to about 13% coke by weight relative to a weight of molecular sieve material within the coked catalyst particles.

11. (Original) The process of claim 1, wherein the regenerated catalyst particles contain less than 0.2% coke by weight relative to a weight of molecular sieve material within the regenerated catalyst particles.

12. (Original) The process of claim 1, wherein a lifetime of the mixed catalyst particles corresponds to a cumulative grams of methanol converted per gram of sieve value of about 10, and wherein a catalytic activity of the mixed catalyst particles is maintained at above 80% conversion of methanol to olefin at a cumulative grams of methanol converted per gram of sieve value of 5.

13. (Original) The process of claim 1, wherein a lifetime of the mixed catalyst particles corresponds to a cumulative grams of methanol converted per gram of sieve value of about 10, and wherein a catalytic activity of the mixed catalyst particles is maintained at above 90% conversion of methanol to olefin at a cumulative grams of methanol converted per gram of sieve value of 5.

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14. (Original) The process of claim 1, wherein a catalytic activity of the mixed catalyst particles is maintained at above 80% conversion of methanol to olefin at a cumulative grams of methanol converted per gram of sieve value corresponding to half of a catalyst particle lifetime.

15. (Original) The process of claim 1, wherein a lifetime of the mixed catalyst particles corresponds to a cumulative grams of methanol converted per gram of sieve value from about 20 to 30, and wherein a catalytic activity of the mixed catalyst particles is maintained at above 80% conversion of methanol to olefin at a cumulative grams of methanol converted per gram of sieve value from about 10 to 15.

16. (Original) The process of claim 1, wherein a lifetime of the mixed catalyst particles corresponds to a cumulative grams of methanol converted per gram of sieve value from about 40 to 50, and wherein a catalytic activity of the mixed catalyst particles is maintained at above 80% conversion of methanol to olefin at a cumulative grams of methanol converted per gram of sieve value from about 20 to 25.

17. (Original) The process of claim 1, wherein a selectivity of the mixed catalyst particles is maintained at above an average prime olefin selectivity value of 72.0%.

18. (Original) The process of claim 1, wherein a selectivity of the mixed catalyst particles is maintained within 1% of an average prime olefin selectivity value for a sample of catalyst particles that does not contain deactivated catalyst.

19. (Original) The process of claim 1, wherein the regenerated catalyst particles are mixed with the coked catalyst particles at a mass flow rate that is at least 5% of the mass flow rate of the coked catalyst particles.

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20. (Original) The process of claim 1, wherein the regenerated catalyst particles are mixed with the coked catalyst particles at a mass flow rate that is from about 20% to 100% of the mass flow rate of the coked catalyst particles at mixing.

21. (Previously Presented) The process of claim 1, wherein the regenerated catalyst particles are mixed with the coked catalyst particles at a mass flow rate that is from about 30% to 50% of the mass flow rate of the coked catalyst particles at mixing.

22 - 24. (Canceled)

25. (Currently Amended) A process for protecting catalytic activity of a silicoaluminophosphate molecular sieve, comprising the steps of:

a) regenerating catalyst particles that contain silicoaluminophosphate molecular sieve at a temperature of at least 580°C;

b) cooling the regenerated catalyst particles after regeneration to a temperature of 550°C or less; and

c) mixing the cooled, regenerated catalyst particles with coked catalyst particles having a coke level of at least 2% by weight relative to a weight of molecular sieve material within the coked catalyst particles to maintain a catalytic activity of the coked catalyst particles at above 80% conversion of methanol at a cumulative grams of methanol converted per gram of sieve value of 5,

wherein carbon contained in the coke is the only carbon present and oxygen contained within the catalyst is the only oxygen present.

26 - 27. (Canceled)

28. (Original) The process of claim 25, wherein the regenerated catalyst particles are mixed at a temperature from about 400°C to about 550°C.

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29 - 31. (Canceled)

32. (Original) The process of claim 25, wherein the coked catalyst particles contain from about 2% to about 18% coke by weight relative to the weight of molecular sieve material within the coked catalyst particles.

33. (Original) The process of claim 25, wherein the coked catalyst particles contain from about 7% to about 13% coke by weight relative to a weight of molecular sieve material within the coked catalyst particles.

34. (Original) The process of claim 25, wherein the regenerated catalyst particles contain less than 0.2% coke by weight relative to a weight of molecular sieve material within the regenerated catalyst particles.

35. (Original) The process of claim 25, wherein the regenerated catalyst particles are mixed with the coked catalyst particles at a mass flow rate that is at least 5% of a mass flow rate of the coked catalyst particles.

36. (Original) The process of claim 25, wherein the regenerated catalyst particles are mixed with the coked catalyst particles at a mass flow rate that is from about 20% to 100% of a mass flow rate of the coked catalyst particles at mixing.

37. (Previously Presented) The process of claim 25, wherein the regenerated catalyst particles are mixed with the coked catalyst particles at a mass flow rate that is from about 30% to 50% of a mass flow rate of the coked catalyst particles at mixing.

38 - 49. (Canceled)

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50. (Currently Amended) A process for protecting catalytic activity of a silicoaluminophosphate molecular sieve, comprising the steps of:

a) regenerating silicoaluminophosphate molecular sieve catalyst particles at a temperature of at least 580°C to contain less than about 1% coke by weight relative to a weight of molecular sieve material within the regenerated catalyst particles in a regenerator containing a stoichiometric excess of oxygen; and

b) cooling the regenerated catalyst particles to a temperature of less than 550°C; and

c) mixing the cooled, regenerated catalyst particles with coked catalyst particles containing at least 2% coke by weight relative to a weight of molecular sieve material within the coked catalyst particles to maintain the catalytic activity of the mixed catalyst particles at a predetermined level,

wherein carbon contained in the coke is the only carbon present and oxygen contained within the catalyst is the only oxygen present.

51 - 53. (Canceled)

54. (Original) The process of claim 50, wherein the regenerated catalyst particles are mixed at a temperature from about 400°C to about 550°C.

55 - 57. (Canceled)

58. (Original) The process of claim 50, wherein the coked catalyst particles contain from about 2% to about 18% coke by weight relative to the weight of molecular sieve material within the coked catalyst particles.

59. (Original) The process of claim 50, wherein the coked catalyst particles contain from about 7% to about 13% coke by weight relative to a weight of molecular sieve material within the coked catalyst particles.

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60. (Original) The process of claim 50, wherein the regenerated catalyst particles contain less than 0.2% coke by weight relative to a weight of molecular sieve material within the regenerated catalyst particles.

61. (Original) The process of claim 50, wherein the regenerated catalyst particles are mixed with the coked catalyst particles at a mass flow rate that is at least 5% of the mass flow rate of the coked catalyst particles.

62. (Original) The process of claim 50, wherein the regenerated catalyst particles are mixed with the coked catalyst particles at a mass flow rate that is from about 20% to 100% of the mass flow rate of the coked catalyst particles at mixing.

63. (Previously Presented) The process of claim 50, wherein the regenerated catalyst particles are mixed with the coked catalyst particles at a mass flow rate that is from about 30% to 50% of the mass flow rate of the coked catalyst particles at mixing.

64 – 67. (Canceled)